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Studies in Thai Flora

1. HAMAMELIDACEAE

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ABSTRACT

The purpose of this study is to revise the family Hammamelidaceae for the Flora of Thailand. It is apparent that so far members of this family, consisting 5 genera and 6 species, are occurred in Thailand. They are *Altingia excelsa* Noronha, *Symingtonia populnea* Steenis, *Distylium indicum* Benth. ex Clarke, *Distylium annamicum* A. Shaw, *Sycopsis dunnii* Hemsl. and *Loropetalum chinense* R. Br. Most of them are scattered in the tropical evergreen and hill evergreen forests. While the latter four species are new record for Thailand.

INTRODUCTION

The family Hamamelidaceae was firstly studied by Prof. W.G. Craib in 1928. He enumerated 2 taxa : *Altingia siamensis* Craib a new species, based on the collection of Dr. A.F.G. Kerr; and *Bucklandia populnea* R. Br. ex Griff. Under the present study both of them become *Altingia excelsa* Noronha, and *Symingtonia populnea* (R. Br. ex Griff.) van Steenis respectively. Besides the above mentioned taxa, another 2 taxa are elucidated during the course of study. Owing to the lacking of type specimens and the scanty collection in Bangkok herbaria, the study has come to standstill for a while. Since the author had the chance to visit the main herbaria in Europe and U.S.A., the study of this family has come to conclusion.

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Monoecious tree or shrub; buds persulate. Leaves simple, spirally arranged, usually penninerved, entire, crenate-serrate or dentate margin. Stipules caducous. Flowers free or connate in head, spike or raceme, hermaphrodite, polygamous or unisexual, usually actinomorphous, 4-5-merous. Sepals small or lacking. Petals linear or lacking. Stamens free, anthers basifixed, longitudinally dehiscing. Ovary 2-celled; style 2, free; ovules 1 to many. Capsules woody, dehiscent. Seeds 1 or more.

About 25 genera and 110 species mainly in subtropic and warm temperate regions, only 5 genera and 6 species are recorded in Thailand.

KEY TO THE GENERA

1. Sepal and petal absent
   2. Ovary half inferior. Capsules united in a globular or obpyramidal head. Seeds winged **1. Altingia**
   2. Ovary superior. Capsules free, ellipsoid. Seeds wingless **2. Distylium**
1. Either sepals or petals present, or both of them present
   3. Leaves penninerved. Capsules free, ovoid or ellipsoid. Seeds wingless
      4. Sepals 6. Petals absent. Capsules surrounded by receptacle at the lower half **3. Sycopsis**
      4. Sepals 4. Petals present. Capsule opened **4. Loropetalum**
   3. Leaves 3–5-nerved from the base. Capsules united in a globular head. Seeds winged **5. Symingtonia**

1. ALTINGIA

Noronha, Verh. Bot. Gen. K. W. ed. 1 : 5. 1790.— *Sedgwickia* Griff., As. Res. 19 : 98, t. 15. 1836.

Monoecious trees. *Leaves* glandular crenate-serrate or entire, penninerved. *Stipules* subulate, caducous. *Flowers* unisexual, male in spikes, female in heads. *Sepal* and *petal* absent. *Ovary* half inferior to inferior, 2-celled; each cell with numerous ovules. *Capsules* woody, ovoid to obpyramidal. *Seeds* winged.

About 7 species distributed from Himalaya, South China, Malay Peninsula to Indonesia. In Thailand only one species is recorded.

1.1 Altingia excelsa Noronha, Verh. Bot. Gen. K. W. ed. 1 : 5. 1790; Kurz, Fl. Br. Burm. 1 : 445. 1877; Clarke in Fl. Br. Ind. 2 : 429. 1878; Brandis, Ind. Trees : 302. 1906; Vink in Fl. Males. I. 5. 3 : 376. 1957.—*A. siamensis* Craib, Kew. Bull. 1928 : 68; in Fl. Siam. En. 1 : 590. 1931; Tard. in Fl. C. L. V. 4 : 99. Pl. III, 4. 1965. Figure 1.

Evergreen tree, glabrous; buds ovoid. *Leaves* elliptic to ovate-lanceolate, 6-12 by 2-5 cm; apex acute; base acute to obtuse and usually curved upward, glabrous. *Flowers* in spikes or racemes. *Sepal* and *petal* absent. *Female flowers* in heads, 4-18-flowered, ± 1 by 1 cm. *Capsules* woody head, ± 5.1 cm diam.; stalk 2-3.5 cm.

Thailand.—NORTHERN : Chiang Rai, Phitsanulok; EASTERN : Chaiyaphum, Nakhon Ratchasima.

Distribution.—India (type), Burma, China, Vietnam, Laos, Cambodia, Malay Peninsula, Indonesia.

Ecology.—Nearby stream in evergreen forests, altitude 600-800 m. Flowering and fruiting : November-February.

Vernacular.—Sop สบ, hom หอม, satue สะตือ, nuut นูด, kratuk กระตุก, tamyaan ตำยาน, prok ปรก, yaan ยาน (Northern & North-eastern).

Uses.—Young leaves are eaten as vegetable. The aromatic resin for chemical and aromatic purposes. Wood good for indoor construction and cabinet work.

2. DISTYLIUM

Sieb. & Zucc., Fl. Japon. 1 : 178, t. 94. 1835; Walker, J. Arn. Arb. 25 : 322. 1944; Vink in Fl. Males. I. 5. 3 : 369. 1957; Airy Shaw, Kew Bull. 17 : 264. 1963.

Figure 1. ไม้หอม *Altingia excelsa* Noronha

Monoecious tree. *Leaves* entire or serrate, penninerved. *Stipules* lanceolate, caducous. *Flowers* unisexual and monoecious in spikes or racemes. *Sepal* and *petal* absent. *Ovary* superior 2-celled, each cell 1 ovule. *Capsules* ellipsoid. *Seeds* wingless.

About 15 species mainly in Asia, in Thailand only two species are recorded.

KEY TO THE SPECIES

1. Leaves obovate or elliptic — **1. D. indicum**
2. Leaves lanceolate — **2. D. annamicum**

2.1 Distylium indicum Benth. ex Clarke in Fl. Br. Ind. 2 : 427. 1878; Brandis, Ind. Trees : 301. 1921; Walker, J. Arn. Arb. 25 : 329. 1944; Tard. in Fl. C. L. V. 4 : 114. Pl. VIII 8-10. 1965.—*Saxifragites latifolius* Gagnep., Not. Syst. 24 : 35. 1950; Airy Shaw, Kew Bull. l. c. : 264. Figure 2.

Evergreen tree, glabrescent. *Leaves* elliptic and obovate, 6-14 by 3-6 cm, acute to acuminate apex, cuneate base, margin entire or serrate on the upper half toward apex, with intramaginal vein. *Flowers* in spikes or racemes. *Sepals* absent or caducous. *Petal* absent. *Capsules* ellipsoid, woody, 1.5-2 cm long, ± 1 cm diam., hairy; stalk 0.5-1 cm.

Thailand.—NORTH-EASTERN : Loei (Phu Luang); EASTERN : Chaiyaphum (Nam Phrom); SOUTH-EASTERN : Chon Buri (Khao Khieo).

Distribution.—India (type).

Ecology.—Nearby stream in evergreen forests, altitudes 600-1,300 m. Flowering and fruiting : January-April; fruits always mature in April. Usually being the host of some kind of gall (egg-shaped).

Vernacular.—Khai nok katha ไข่นกกะทา (General).

Note.—This species is a new record from Thailand, found at Nam Phrom, Chaiyaphum by Dr. R. Geesink and his colleagues in 1974.

Figure 2. ไข่นกกะทา *Distylium indicum* Benth. ex Clarke

2.2 **Distylium annamicum** (Gagnep.) A. Shaw, Kew Bull. 17 : 264. 1963; Tard. in Fl. C. L. V. 4 : 112. Pl. VIII, 1-7. 1965.—*Saxifragites annamicus* Gagnep. in Not. Syst. 14 : 34. 1950. Figure 3.

Evergreen tree, glabrous. *Leaves* lanceolate, 4-12 by 1-2 cm, cuspidate apex, cuneate base, margin entire. *Flowers* in spikes or racemes. *Sepals* absent or caduceous. *Petal* absent. *Capsules* ellipsoid, woody, 1 by 0.5 cm (young stage), hairy; stalk ± 0.5 cm.

T h a i l a n d.—EASTERN : Chaiyaphum (Nam Phrom).

D i s t r i b u t i o n.— Vietnam (type).

E c o l o g y.— Nearby stream in evergreen forests, altitudes 600-700 m. Flowering and fruiting : December-March. Usually being the host of a kind of gall-insect (horn-shaped).

V e r n a c u l a r.— Khai nok katha dong ไข่นกกะทาดง (North-eastern).

N o t e.— This species is a new record from Thailand, found at Nam Phrom, Chaiyaphum by Dr. C. F. van Beusekom and his colleaques in 1971.

3. SYCOPSIS

Oliv. in Trans. Linn. Soc. 23 : 83. Pl. 8. 1860; Walker, J. Arn. Arb. 25 : 335. 1944; Vink in Fl. Males. I. 5. 3 : 371. 1957.

Monoecious tree. *Leaves* entire, penninerved. *Stipules* lanceolate, caducous. *Flowers* unisexual and monoecious in spikes or racemes. *Sepals* 1-5. *Petal* absent. *Ovary* half-inferior, 2-celled, each cell 2-4 ovules. *Capsules* ellipsoid. *Seeds* wingless.

About 7 species mainly in Asia, in Thailand only one species is recorded.

Figure 3. ไข่นกกะทาดง *Distylium annamicum* (Gagnep.) A. Shaw

3.1 **Sycopsis dunnii** Hemsl., Hook. Ic. Pl. : 29. t. 2836. 1907; Walker, J. Ar. Arb. 25 : 338. 1944; Vink in Fl. Males. I. 5. 3 : 371. 1957; Tard. in Fl. C. L. V. 4 : 109. Pl. I, 6-12. 1965.—*Sycopsis philippinensis* Hemsl., l. c. : 2.—*Croton curviflorus* Elmer, Leafl. Bot. 1 : 310. 1908. Figure 4.

Evergreen tree, glabrous. *Leaves* elliptic or oblong, 5-11 by 1.2-3cm, acute to acuminate apex, acute to slightly cuneate base. *Flowers* in spikes or racemes. *Sepals* 6. *Petal* absent. *Capsules* ellipsoid, woody, ± 1 by 1 cm, surrounded by receptacle at the lower half; stalk 0.5 cm.

Thailand.— SOUTH-EASTERN : Chon Buri (Khao Khieo); PENINSULAR : Krabi (Phanom Bencha).

Distribution.—South China (type), Malaya, Indonesia, Philippines.

Ecology.—In evergreen forests, altitudes 600-1000 m. Flowering and fruiting : December-March.

Vernacular.—Khai nok khum ไข่นกคุ่ม (General).

Note.—This species is a new record for Thailand, found at Phanom Bencha, Krabi by A. F. G. Kerr in 1930.

4. LOROPETALUM

R. Br in Abel. Narr. J. Chin. App. : 375. 1818.

Monoecious tree. *Leaves* entire, penninerved. *Stipules* lanceolate, caducous. *Flowers* unisexual and monoecious in heads. *Sepals* 4. *Petals* 4. *Ovary* half inferior, 2-celled, each cell with 1 ovule. *Capsulès* ovoid. *Seeds* wingless.

About 3 species mainly in Asia, in Thailand only one species is recorded.

Figure 4. ไข่นกคุ่ม *Sycopsis dunnii* Hemsl.

4.1 **Loropetalum chinense** Oliv., Trans. Linn Soc. 23 : 459. 1862; Clarke in Fl. Br. Ind. 2 : 428. 1879; Brandis, Ind. Trees : 301. 1921.— *Hamamelis chinensis* R. Br. in Abel, Aarr.J. Chin.: 375. Figure 5.

Evergreen tree, young parts hairy. *Leaves* elliptic or ovate, 3-6 by 1.5-3.5 cm, acute apex, obtuse or broadly obtuse base. *Flowers* in globular head. *Sepals* 4. *Petals* 4, linear, upto 1 cm long. *Capsules* ovoid, woody, sessile.

Thailand.— NORTH-EASTERN : Phetchabun (Nam Nao National Park).

Distribution.—India, South China (type).

Ecology.— In evergreen forests, altitudes 600-800 m. Flowering and fruiting : March - May.

Vernacular.—Khai nok khao ไข่นกเขา (North-eastern).

Note.— This species is a new record for Thailand, found at Nam Nao National Park in Phetchabun by Mr. B. Sangkhachand in 1976.

5. SYMINGTONIA

Steenis, Act. Bot. Neerl. 1 : 443. 1952.— *Bucklandia* R. Br. ex Griff. in Pl. As. Res. 19. 1 : 94, t. 13-14. 1836; Engl. & Prantl, Nat. Pflanzenfam. 18 a : 336. 1930.—*Exbucklandia* R.W. Br. (nom. nud.), J. Wash. Acad. Sci. 36 : 348. 1940; Steenis, Blumea 7 : 595. 1954.

Monoecious trees. *Leaves* entire or tri-lobed in young stage, 3-5 nerves from base. *Stipules* oblong, cohering, caducous. *Flowers* unisexual and monoecious in heads. *Sepal* absent. *Petals* 2-7. *Ovary* half inferior, 2-celled, each cell 4 ovules. *Capsules* woody, globose. *Seeds* winged.

Two species mainly in Asia, in Thailand only one species is recorded.

Figure 5. ไข่นกเขา *Loropetalum chinense* Oliv.

Figure 6. โพสามหาง *Symingtonia populnea* (R. Br. ex Griff.) Steenis

5.1 Symingtonia populnea (R. Br. ex Griff.) Steenis, Act. Bot. Neerl. 1 : 444. 1952; Vink in Fl. Males. I. 5. 3 : 375. 1957; Tard. in Fl. C. L. V. 4 : 83. Pl. II, 2-8. 1965.— *Bucklandia populnea* R. Br. ex Griff, Pl. As. Res. 19 : 95. 1836; Kurz, Fl. Br. Burm. 1 : 445. 1877; Clarke in Fl. Br. Ind. 2 : 429. 1878; King, J. As. Soc. Bengal 66. 2 : 308. 1897; Brandis, Ind. Trees : 301. 1906; Ridl., Fl. Mal. Pen. 1 : 691. 1922; Craib in Fl. Siam. En. 1 : 590. 1931.— *Exbucklandia populnea* R.W. Br., l. c. : 36. Figure 6.

Evergreen tree, glabrous. *Leaves* broadly ovate or tri-lobed, 5-16 by 4-12 cm; acute apex; obtuse to rounded base; glabrous, rarely glabrescent. *Flowers* unisexual or polygamous in globose head, ± 1.5 cm diam. *Capsules,* woody, globose, 2-2.5 cm diam., stalk 1.5-2.5 cm.

Thailand.— NORTHERN : Chiang Mai (Doi Inthanon).

Distribution.—South China, India (type), Nepal, Bhutan, Burma, Vietnam, Malay Peninsula, Indonesia.

Ecology.—In hill evergreen forests, 1600-2200 m. alt. Flowering and fruiting : January - June.

Vernacular.—Pho saam haang โพสามหาง (Northern).

INDEX TO COLLECTOR'S NUMBERS

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